

The claims stand rejected under 35 USC 103(a) as allegedly being unpatentable over Coran et al. Applicants respectfully traverse this rejection.

Coran et al disclose a binder including (a) a crystalline polyolefin resin and (b) a binder rubber, wherein the binder rubber is vulcanized by dynamic vulcanization to form fine particles within the binder resin. Coran et al further disclose that the crosslinked binder rubber should have a number average diameter of less than  $50\mu$ . . .and still more preferably less than  $2\mu$ . The Examiner considers that “less than  $2\mu$ ” **encompasses** the range recited in claim 1 but, even if true, this is respectfully believed to be irrelevant in the present case where the same statement could be alleged with respect to “less than  $100\mu$ ”, “less than  $50\mu$ ” etc. The relevant points are that Coran et al do not describe or enable a thermoplastic elastomer comprising a crosslinked binder rubber having a number average diameter of  $0.05$  to  $0.5\mu$  as recited in claim 1, and Coran et al do not specifically measure or describe the number average diameter of the crosslinked binder rubber as contained in the thermoplastic rubbery compositions of their Examples.

The reason that Coran et al do not describe a number average diameter of rubber particles within the claimed range is not accidental. It is well known in the art that the ultimate properties of the thermoplastic elastomer are an inverse function of elastomer particle diameter (see, G. Holden et al, Thermoplastic Elastomers, 2<sup>nd</sup> Edition, Hanser Publishers, Munich Vienna New York, p.159, and also the description of the present application, page 2, lines 18-22, “in respect of fully . . . better processability of the material”). However, while it may be apparent

for those skilled in the art that a lower number average diameter of the crosslinked rubber is preferred, as pointed out in the present specification (see, page 2, lines 4-8 from the bottom) and as known in the art (see, G. Holden et al., *ibid*), in the methods known in the art for preparing particulate crosslinked rubbers or for preparing thermoplastic elastomer containing a particulate crosslinked rubber, the smaller the number average diameter of the crosslinked rubber, the larger the difficulty to obtain the particulate crosslinked rubbers or thermoplastic elastomer containing a particulate crosslinked rubber.

Due to the difficulty in obtaining a particulate crosslinked rubber having a very small number average diameter or thermoplastic elastomer containing such a particulate crosslinked rubber, the prior art, including Coran et al, has provided no process capable of preparing a particulate crosslinked rubber having a number average diameter of 0.05 to 0.5  $\mu\text{m}$  or a thermoplastic elastomer containing such a particulate crosslinked rubber. In fact, G. Holden et al (*ibid*) and Polymer Blends, Vol. 2: Performance, Edited by D.R. Paul and C.B. Bucknall, John Wiley & Sons, Inc., 2000 (see, pages 519 and 521) disclose that dynamic vulcanization (which is deemed as a method capable of producing the smallest size of rubber particles) could provide a thermoplastic elastomer containing elastomer particles (only) in the 1- to 2- $\mu\text{m}$  range.

There is nothing in Coran et al to show or suggest that they have actually prepared a thermoplastic elastomer containing a particulate crosslinked rubber having a number average diameter of less than 2 $\mu\text{m}$ , let alone a thermoplastic elastomer containing a particulate crosslinked rubber having a number average diameter of 0.05 to 0.5  $\mu\text{m}$  as recited in claim 1.

Moreover, there is nothing in Coran et al that would enable one of skill in the art to prepare a thermoplastic elastomer as claimed containing a particulate crosslinked rubber having a number average diameter within the range as recited in claim 1. This being the case, Coran et al cannot be considered to render the invention defined by claim 1. See, e.g., *Motorola, Inc. v. Interdigital Teach. Corp.*, 121 F.3d 1461, 1471, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997) (“In order to render a claimed apparatus or method obvious, the prior art must enable one skilled in the art to make and use the apparatus or method.” (Quoting *Beckman Instruments, Inc. v. LKB Produkter AB*, 892, F2d 1547, 1551, 13 USPQ2d 1301, 1304 (Fed. Cir. 1989))).

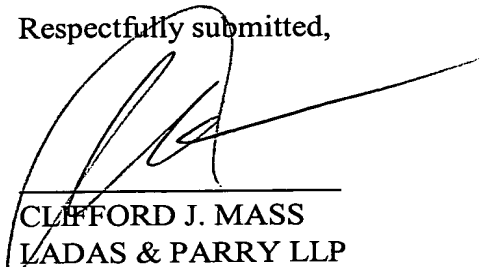
With particular respect to claim 9, the claim requires *inter alia*: step (i) providing a fully vulcanized powdery rubber as a first starting material. In other words, claim 1 requires the provision of a fully vulcanized rubber **prior to** the blending step.

Coran et al disclose a process for preparing a thermoplastic elastomer containing a binder which includes (a) a crystalline polyolefin resin and (b) a binder rubber, wherein the binder rubber is vulcanized by dynamic vulcanization to form fine particles **within the** binder resin. In other words, the method of Coran et al for providing the binder does **not** include a step of providing a fully vulcanized powdery rubber as a first starting material and does not meet the limitations of claim 9.

In view of the above, it is respectfully submitted that the cited art does not set forth even

a *prima facie* case of obviousness for the invention as defined by the claims of record such that the prior art rejection of record should be withdrawn. Accordingly, the application is now believed to be in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,



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